

What is Claimed:

- 1                   1.     A method for scintillation suppression of video images  
2     comprising the steps of:
  - 3                   (a) receiving a frame of pixels having intensity values;
  - 4                   (b) identifying pixels in the received frame having scintillation noise;
  - 5                   (c) modifying intensity values of pixels in the received frame, identified  
6     as having scintillation noise, to form a filtered frame of pixels;
  - 7                   (d) counting the number of pixels modified in step (c); and
  - 8                   (e) displaying the filtered frame of pixels, if the amount of pixels  
9     counted is less than a threshold value.
- 1                   2.     The method of claim 1 including receiving previous and present  
2     frames of pixels, wherein
  - 3                   step (c) includes storing a previously filtered frame of pixels in a  
4     buffer, and
  - 5                   modifying intensity values of pixels in a presently received frame of  
6     pixels by using a previously filtered frame of pixels stored in the buffer.
- 1                   3.     The method of claim 2 wherein modifying intensity values of  
2     pixels of the presently received frame of pixels includes

3 substituting a pixel at a two-dimensional location of the presently  
4 received frame of pixels with another pixel at the same two-dimensional location of  
5 the previously filtered frame of pixels.

1 4. The method of claim 3 wherein substituting the pixel of the  
2 presently received frame with the pixel of the previously received frame includes

3 only substituting the pixel of the presently received frame, if the  
4 intensity value of the pixel is greater than a first predetermined threshold value.

1 5. The method of claim 4 wherein substituting the pixel of the  
2 presently received frame with the pixel of the previously received frame further  
3 includes

4 only substituting the pixel, if the difference between the intensity value  
5 of the pixel of the presently received frame and the intensity value of the pixel of the  
6 previously received frame is greater than a second predetermined threshold value.

1 6. The method of claim 5 including the step of:

2 dynamically adjusting at least one of the first and second  
3 predetermined threshold values on a frame by frame basis.

1 7. The method of claim 5 including the step of:

2 setting the first predetermined threshold value greater than the second  
3 predetermined threshold value.

1                   8.     The method of claim 1 further including the steps of:

2                   (f) setting a number of a suspension threshold;

3                   (g) comparing the number of the suspension threshold to the number  
4     of pixels counted in step (d); and

5                   (h) suspending step (c), if the number of pixels counted in step (d) is  
6     larger than the number of the suspension threshold.

1                   9.     The method of claim 8 wherein

2                   setting the number of the suspension threshold is based on an amount  
3     of scene dynamics in the received frame of pixels.

1                   10.    The method of claim 8 including receiving previous and present  
2     frames of pixels, wherein

3                   setting the number of the suspension threshold is based on an amount  
4     of pixels of a previously received frame, modified in step (c), plus approximately  
5     10%

1                   11.    The method of claim 10 further including the step of:

2                   storing a previously filtered frame of pixels in a buffer, and

3                   step (e) includes displaying the previously filtered frame of pixels  
4     stored in the buffer, if step (h) suspends step (c).

1                   12.    A system for scintillation suppression comprising  
2                   a receiver for receiving a frame of pixels having intensity values,  
3                   a processor, coupled to the receiver, for  
4                   (a) identifying pixels in the received frame having scintillation  
5                   noise, and  
6                   (b) modifying intensity values of pixels in the received frame  
7                   identified as having scintillation noise, to form a filtered frame of pixels,  
8                   a counter, included in the processor, for counting the number of pixels  
9                   modified by the processor, and  
10                  a display for displaying the filtered frame of pixels formed by the  
11                  processor,  
12                  wherein the display displays the filtered frame of pixels, if the amount  
13                  of pixels counted by the counter is less than a threshold value.

1                   13.    The system of claim 12 wherein  
2                   the receiver is configured to receive previous and present frames of  
3                   pixels,  
4                   a first buffer is coupled to the processor for storing a previously filtered  
5                   frame of pixels, and

6                   the processor is configured to modify intensity values of a presently  
7   received frame of pixels based on the previously filtered frame of pixels stored in the  
8   first buffer.

1                   14.    The system of claim 13 wherein

2                   the processor is configured to substitute a pixel at a two-dimensional  
3   location of the presently received frame of pixels with another pixel at the same two-  
4   dimensional location of the previously filtered frame of pixels.

1                   15.    The system of claim 14 wherein

2                   the processor is configured to only substitute the pixel of the presently  
3   received frame, if the intensity value of the pixel is greater than a first  
4   predetermined threshold value.

1                   16.    The system of claim 14 wherein

2                   the processor is configured to only substitute the pixel, if the difference  
3   between the intensity value of the pixel of the presently received frame and the  
4   intensity value of the pixel of the previously received frame is greater than a second  
5   predetermined threshold value.

1                   17.    The system of claim 14 wherein

2                   the processor includes a suspension threshold number, and

3                   a comparator for comparing the number of pixels substituted by the  
4   processor in the presently filtered frame of pixels with the suspension threshold  
5   number, and

6                   the processor suspending the modification of intensity values of pixels  
7   in the presently received frame, if the comparator determines that the number of  
8   pixels substituted by the processor in the presently filtered frame of pixels is larger  
9   than the suspension threshold number.

1                   18.    The system of claim 17 wherein

2                   the suspension threshold number is based on the number of pixels  
3   substituted in a previously filtered frame plus approximately 10%.

1                   19.    The system of claim 13 wherein

2                   a second buffer is coupled to the processor for storing a previously  
3   received frame of pixels, in which the pixels are free-of any modification by the  
4   processor, and

5                   the processor is configured to modify the presently received frame of  
6   pixels based on the previously received frame of pixels stored in the second buffer,  
7   and

8                   the processor is configured to store the filtered frame of pixels in the  
9   first buffer.

1                   20.    The system of claim 19 wherein

- 2 the display is configured to display the filtered frame of pixels stored in
- 3 the first buffer.